Math 116: Worksheet 3

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2/1/2024

1. (a)

	y_1	y_2
88	1	0
63	0	1
25	1	-1
13	-2	3
12	3	-4
1	-5	7

$88(-5) + 63(7) = 1$

   (b) $x = 65 \cdot 63 \cdot 7 + 52 \cdot 88 \cdot (-5) + 88 \cdot 63k = 5785 \equiv 241 \pmod{88 \cdot 63}$.
$x \equiv 241 \pmod{5544}$.

   (c) $x = 23 \cdot 63 \cdot 7 + 42 \cdot 88 \cdot (-5) + 88 \cdot 63k = -8337 \equiv 2751 \pmod{5544}$.
$x \equiv 2751 \pmod{5544}$.

2. $x \equiv 162869022118 \pmod{542909251286}$

3. $x \equiv 569 \pmod{133980}$. They must all be pairwise coprime.

4. (a) $\gcd(18, 60) = 6$. Because 18 and 60 are not co-prime, the CRT does not guarantee a solution.

   (b)